

WHAT IS CLAIMED IS:

1. A thin-film magnetic head comprising:  
at least either an electromagnetic transducer  
or a magnetoresistive device; and

5 a sheet-shaped heater for generating heat when energized, the heater having a heating part with a predetermined sheet resistance and a lead part which is connected in series to the heating part and has a sheet resistance lower than that of the heating part.

10 2. A thin-film magnetic head according to claim 1, wherein the heating part and the lead part include an electrically conductive common layer extending from the lead part to the heating part, and the lead part further includes an electrically  
15 conductive additional layer provided in contact with the common layer.

3. A thin-film magnetic head according to claim 2, wherein the additional layer has a sheet resistance lower than that of the common layer.

20 4. A thin-film magnetic head according to claim 2, wherein the additional conductive layer contains at least one of Cu, Au, Ni, Co, Ta, W, Mo, Rh, and alloys thereof.

25 5. A thin-film magnetic head according to claim 1, wherein the lead part and the heating part

are made of the same material, the lead part having a thickness greater than that of the heating part.

5       6.   A thin-film magnetic head according to claim 1, wherein at least one of the lead and heating parts is formed by sputtering.

7.   A thin-film magnetic head according to claim 1, wherein the heater thermally expands when energized to cause the electromagnetic transducer or magnetoresistive device to project.

10       8.   A thin-film magnetic head according to claim 1, wherein the heating part is formed in a strip having opposite ends, and

      wherein the heater further comprises a lead part which is connected in series to the heating part and has a sheet resistance lower than that of the heating part, the lead parts are respectively connected to the opposite ends of the heating part.

15       9.   A thin-film magnetic head according to claim 1, wherein the heating part is shaped in a strip winding in a rectangular wave pattern.

20       10.   A head gimbal assembly comprising:

      a support;

      a thin-film magnetic head formed on the support; and

25       a gimbal for securing the support,

distance between the recording medium and the electromagnetic transducer or magnetoresistive device is reduced.

the thin-film magnetic head having at least  
either an electromagnetic transducer or a  
magnetoresistive device, and a sheet-shaped heater  
for generating heat when energized, the heater  
5 including a heating part with a predetermined sheet  
resistance and a lead part which is connected in  
series to the heating part and has a sheet  
resistance lower than that of the heating part.

11. A hard disk drive comprising:

10 a support;

a thin-film magnetic head formed on the  
support; and

a recording medium opposing the thin-film  
magnetic head,

15 the thin-film magnetic head having at least  
either an electromagnetic transducer or a  
magnetoresistive device, and a sheet-shaped heater  
for generating heat when energized, the heater  
including a heating part with a predetermined sheet  
20 resistance and a lead part which is connected in  
series to the heating part and has a sheet  
resistance lower than that of the heating part.

12. A hard disk drive according to claim 11,  
wherein the heater thermally expands when energized  
25 to cause the electromagnetic transducer or  
magnetoresistive device to project so that a